IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Weixiao Liu

Examiner: Russell, Wanda Z.

Serial No: 10/560,480

Group Art Unit: 2416

Filed: December 12, 2005

Docket: PU030168

For: METHOD AND APPARATUS FOR PROCESSING NULL PACKETS IN A DIGITAL MEDIA RECEIVER

Mail Stop Appeal Brief-Patents
Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Applicants appeal the status of Claims 1-3 and 11-37 as rejected in the final Office Action dated January 13, 2009, and the non-final Office Action dated June 9, 2009, pursuant to the Notice of Appeal filed concurrently herewith and submit this appeal brief

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E. Whether Claims 20-37 are Unpatentable Under 35 U.S.C. §103(a) With Respect To U.S. Patent No. 6,810,084 to Jun et al. in view of U.S Patent No. 7,280,475 to Tanaka et al. and U.S. Patent Publication No. 2003/0115345 to Chien et al. and U.S. Patent No. 6,788,654 to Hashimoto et al.

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1. Real Party in Interest

The real party in interest is THOMSON LICENSING S.A., the assignee of the entire right title and interest in and to the subject application by virtue of an assignment recorded with the Patent Office on December 12, 2005 at reel/frame 17361/0182.

2. Related Appeals and Interferences

A Notice of Appeal and corresponding Appeal Brief were filed on February 3, 2009 in response to a final Office Action dated January 13, 2009. A Notification of Non-compliant Appeal Brief dated March 6, 2009 was issued in response to the Appeal Brief filed on February 3, 2009. An Amended Appeal Brief was filed on March 23, 2009 in response to the Notification of Non-compliant Appeal Brief dated March 6, 2009. In view of the Appeal Brief filed on March 23, 2009, the Examiner reopened prosecution, issuing a non-final Office Action dated June 9, 2009.

3. Status of Claims

Claims 1-37 are pending. Claim 1 stands objected to. Claims 4-10 also stand objected to, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 1-3 and 11-37 stand rejected and such rejections are under appeal.

A copy of the Claims 1-37 is presented in Section 8 below.

4. Status of Amendments

An Amendment under 37 CFR §1.111, filed with the PTO on November 4, 2008 in response to a non-final Office Action dated October 3, 2008, was entered. A Notice of Appeal and corresponding Appeal Brief were filed on February 3, 2009 in response to a final Office Action dated January 13, 2009. A Notification of Non-compliant Appeal Brief dated March 6, 2009 was issued in response to the Appeal Brief filed on February 3, 2009. An Amended Appeal Brief was filed on March 23, 2009 in response to the Notification of Non-compliant Appeal Brief dated March 6, 2009. In view of the Appeal Brief filed on March 23, 2009, the Examiner reopened prosecution, issuing a non-final Office Action dated June 9, 2009. No Responses/Amendments were filed subsequent to the above Amendment filed on November 4, 2008, with the exception of the aforementioned Appeal Briefs. The non-final Office Action dated June 9, 2009, to which this Appeal Brief is directed, is currently pending.

5. Summary of Claimed Subject Matter

Independent Claim 1 is directed to "[a]n apparatus" (Claim 1, preamble).

The subject matter of the first element (beginning with "a null packet detector") recited in Claim 1 is described, e.g., at: page 8, lines 5-20. Moreover, the subject matter of the first element of Claim 1 involves, e.g.: element 250 of FIG. 2.

The subject matter of the second element (beginning with "wherein") recited in Claim 1 is described, e.g., at: page 8, lines 21 to page 9, line 9. Moreover, the subject matter of the second element of Claim 1 involves, e.g.: element 250 of FIG. 2.

Independent Claim 13 is directed to "[a]n apparatus" (Claim 13, preamble).

The subject matter of the first element (beginning with "a Syndrome detector") recited in Claim 13 is described, e.g., at: page 10, lines 1-6. Moreover, the subject matter of the first element of Claim 13 involves, e.g.: element 210 of FIG. 2.

The subject matter of the second element (beginning with "a null packet detector") recited in Claim 13 is described, e.g., at: page 8, lines 5-20. Moreover, the subject matter of the second element of Claim 13 involves, e.g.: element 250 of FIG. 2.

The subject matter of the third element (beginning with "an MPEG Sync-Byte Re-insertion circuit") recited in Claim 13 is described, e.g., at: page 6, lines 26-32; and page 10, lines 6-9. Moreover, the subject matter of the third element of Claim 13 involves, e.g.: element 240 of FIG. 2.

Independent Claim 20 is directed to "[a] method" (Claim 20, preamble).

The subject matter of the first element (beginning with "processing a stream") recited in Claim 20 is described, e.g., at: page 11, lines 1-9. Moreover, the subject matter of the first

element of Claim 20 involves, e.g.: element S1 of FIG. 3.

The subject matter of the second element (beginning with "performing a first detection") recited in Claim 20 is described, e.g., at: page 11, lines 10-15. Moreover, the subject matter of the second element of Claim 20 involves, e.g.: element S2 of FIG. 3.

The subject matter of the third element (beginning with "performing a second detection") recited in Claim 20 is described, e.g., at: page 8, lines 25-27; and page 11, lines 19-20. Moreover, the subject matter of the third element of Claim 20 involves, e.g.: element S3 of FIG. 3.

The subject matter of the fourth element (beginning with "if the first fixed bit pattern") recited in Claim 20 is described, e.g., at: page 11, lines 20-21. Moreover, the subject matter of the fourth element of Claim 20 involves, e.g.: element S4A of FIG. 3.

The subject matter of the fifth element (beginning with "inserting") recited in Claim 20 is described, e.g., at: page 11, lines 24-27. Moreover, the subject matter of the fifth element of Claim 20 involves, e.g.: element S5 of FIG. 3.

Independent Claim 34 is directed to "[a] method" (Claim 34, preamble).

The subject matter of the first element (beginning with "processing a stream") recited in Claim 34 is described, e.g., at: page 3, lines 4-15; and page 11, lines 1-9. Moreover, the subject matter of the first element of Claim 34 involves, e.g.: element S1 of FIG. 3.

The subject matter of the second element (beginning with "decoding") recited in Claim 34 is described, e.g., at: page 11, lines 10-15. Moreover, the subject matter of the second element of Claim 34 involves, e.g.: element S2 of FIG. 3.

The subject matter of the third element (beginning with "if a checksum-encoded sync byte

candidate") recited in Claim 34 is described, e.g., at: page 12, lines 13-15. Moreover, the subject matter of the third element of Claim 34 involves, e.g.: element B2 of FIG. 4.

Independent Claim 35 is directed to "[a]n apparatus" (Claim 35, preamble).

The subject matter of the first element (beginning with "means for processing a stream") recited in Claim 35 is described, e.g., at: page 3, lines 4-15; page 8, lines 8-9; and page 11, lines 1-9. Moreover, the subject matter of the first element of Claim 35 involves, e.g.: element 250 of FIG. 2.

The subject matter of the second element (beginning with "means for decoding") recited in Claim 35 is described, e.g., at: page 11, lines 10-15. Moreover, the subject matter of the second element of Claim 35 involves, e.g.: element 220 of FIG. 2.

The subject matter of the third element (beginning with "means for searching") recited in Claim 35 is described, e.g., at: page 8, lines 21-27. Moreover, the subject matter of the third element of Claim 35 involves, e.g.: element 250 of FIG. 2.

6. Grounds of Rejection to be Reviewed on Appeal

Claims 1-3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,810,084 to Jun et al. (hereinafter "Jun") in view of U.S. Patent No. 7,280,475 to Tanaka et al. (hereinafter "Tanaka"). Claims 11-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Jun in view of Tanaka and U.S. Patent No. 6,788,654 to Hashimoto et al. (hereinafter "Hashimoto"). Claims 13-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Jun in view of Tanaka and U.S. Patent Publication No. 2003/0115345 to Chien et al. (hereinafter "Chien"). Claims 20-37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Jun in view of Tanaka, Chien and Hashimoto.

The preceding rejections under 35 U.S.C. §103(a) are presented for review in this Appeal with respect to Claims 1-3 and 11-37, as argued with respect to independent Claims 1, 13, 20, 34, and 35.

Regarding the grouping of the claims with respect to the rejection under 35 U.S.C. §103(a) of Claims 1-3, Claims 2-3 stand or fall with Claim 1 (due to their common dependency from Claim 1).

Regarding the grouping of the claims with respect to the rejection under 35 U.S.C. §103(a) of Claims 11-12, Claims 11-12 stand or fall together (due to their common dependency from Claim 1).

Regarding the grouping of the claims with respect to the rejection under 35 U.S.C. §103(a) of Claims 13-19, Claims 14-19 stand or fall with Claim 13 due to their respective dependencies.

Regarding the grouping of the claims with respect to the rejection under 35 U.S.C.

§103(a) of Claims 20-37, Claims 21-33 and 36-37 stand or fall with Claim 20 due to their respective dependencies, and Claims 34 and 35 stand alone.

7. Argument

A. Introduction

In general, the present invention is directed to a method and apparatus for processing null packets in a digital media receiver (Applicant's Specification, Title). As disclosed in the Applicant's specification at page 6, lines 7-12:

> The synchronization de-coupling feature of MPEG-2 was intended to introduce the flexibility, for example, to enable the system to carry Asynchronous Transfer Mode (ATM) packets easily without interfering with ATM synchronization. However, an unintended consequence of this feature is the increased probability of "false locks" in the syndrome detector of the prior art within the MPEG framing block in FIG. 1.

Moreover, as disclosed in the Applicant's specification at page 7, lines 3-7:

> In broadcasting, the data stream may contain repetitive null packets, which may cause the Syndrome Detector 220 within the MPEG framing block of the prior art to lock to the wrong (synchronization) byte position, thereby producing invalid MPEG-2 packets output to the transport block even when the FEC is perfectly locked and delivers an error free data stream.

The claims of the pending invention include novel features not shown in the cited references and that have already been pointed out to the Examiner. These features provide advantages over the prior art and dispense with prior art problems such as those described above with reference to the Applicant's specification.

It is respectfully asserted that independent Claims 1, 13, 20, 34, and 35 are each patentably distinct and non-obvious over the cited references in their own right. For example, the below-identified limitations of independent Claims 1, 13, 20, 34, and 35 are not shown in any of the cited references, either taken singly or in any combination. Moreover, these Claims are distinct from each other in that they are directed to different implementations and/or include different limitations. For example, while each of Claims 1, 13, and 35 are respectively directed to an apparatus, each of these claims includes different limitations with respect to each other. Moreover, while each of Claims 20 and 34 are respectively directed to a method, each of these claims includes different limitations with respect to each other. Accordingly, each of independent Claims 1, 13, 20, 34, and 35 represent separate features/implementations of the invention that are separately novel and non-obvious with respect to the prior art and to the other claims. As such, independent Claims 1, 13, 20, 34, and 35 are separately patentable and are each presented for review in this appeal.

B. Whether Claims 1-3 are Unpatentable Under 35 U.S.C. §103(a) With Respect To U.S. Patent No. 6,810,084 to Jun et al. in View of U.S Patent No. 7,280,475 to Tanaka et al.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art" (MPEP §2143.03, citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 1-3 as being unpatentable over U.S. Patent No. 6,810,084 to Jun et al. (hereinafter "Jun") in view of U.S. Patent No. 7,280,475 to Tanaka et al. ("hereinafter "Tanaka"). The Examiner contends that the cited combination shows all the limitations recited in Claims 1-3.

Jun is directed to "MPEG data frame and transmit and receive system using same" (Jun, Title). In further detail, Jun discloses the following in his Abstract:

> Disclosed is an MPEG data frame and a transmitting and receiving system using the MPEG data frame for enhancing receiving performance of receiver which moves or is stationary. The digital TV broadcasting data frame according to the preferred embodiment of the present invention comprises a data frame which includes at least one data field which has 313 data segments. The first data segment of the data field is a data field sync signal which includes a training data sequence used for synchronization at the receiver, and the other 312 data segments each include a 188-byte transport packet and 20-byte error correction data. Therefore, when null packets are input to the 8 VSB transmitter, 2-level training sync signals are used as training data for an equalizer at the receiver so as to increase receiving performance of a receiver that moves or is stationary.

Tanaka is directed to a "data transfer device" (Tanaka, Title). In further detail, Tanaka discloses the following in his Abstract:

> A data transfer apparatus receives from an upper station a data stream that includes a plurality of types of repeat data, each type of repeat data being repeatedly transmitted by the upper station, and transfers the repeat data to a lower station, the data transfer apparatus including a storage unit having a storage area;

an extraction unit for extracting the types of repeat data from the received data stream; a writing unit for writing the extracted repeat data to the storage area; a data structure ratio determination unit for determining a ratio between the types of repeat data to be output in a data stream per fixed length of time; and a data output unit for reading the repeat data stored in the storage unit, and outputting the read repeat data at the determined ratio.

It will be shown herein below that the limitations of Claims 1-3 reproduced herein are not shown in Jun, and that Claims 1-3 should be allowed.

B1. Claims 1-3

Initially, it is respectfully pointed out to the Examiner that Claims 2-3 directly or indirectly depend from independent Claim 1. Thus, Claims 2-3 include all the limitations of Claim 1.

It is respectfully asserted that that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claims 1-3 (with the following applicable to Claims 2-3 by virtue of their respective dependencies from Claim 1):

a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals and having multiple packet types, each packet including a header portion and a data portion, the header portion including a sync byte,

wherein said Null-Packet Detector processes the stream by detecting whether a received packet is a null-packet and for identifying the location of the sync-byte of a detected null-packet

The following portions of Jun were cited against the above recited limitations: Figure 5; col. 3, lines 58-61; col. 5, lines 11 and 40-43; and lines 10-12 of the Abstract of Jun. Additionally, **the Examiner admitted that "Jun et al. fail to specifically teach processing a stream of packets received by said apparatus"**, and cited the following portions of Tanaka as disclosing the same: "507 and 508 in Fig. 17, and col. 19, lines 41-48 for 507 and 508 descriptions".

However, with respect to the Examiner's admission, the actual limitation, taken in its proper context, recites the following: "a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" (emphasis added). Hence, it is clear that (1) the present limitations require "a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals"; and (2) each of Claims 1-3 may be inherently considered to correspond to a receiver, in order to receive the stream of fixed-lengths packets for processing in the first place.

In contrast, Figure 5 of Jun is explicitly directed to a transmitter (see, e.g., Jun, col. 4, lines 39-41, and col. 5, lines 1-3). Accordingly, the first element in the transmitter of Figure 5 of Jun includes an encoder. Hence, Figure 5 of Jun does not teach or suggest processing a stream of fixed-length packets received as digitally encoded signals as recited in each of Claims 1-3, let alone "a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" as recited therein, since the transmitter of Figure 5 of Jun is itself performing the encoding prior to transmission and hence, is not receiving a stream of fixed-length packets as digitally encoded signals as recited in these claims. Element 115 of FIG.

5 of Jun pointed to by the Examiner as "a receiver of the encoded signals" on page 3 of the Office Action is simply a buffer and not a receiver. Moreover, Claims 1-3 are directed to and explicitly recite "an apparatus" (Claims 1-3, preambles), and Claims 1-3 recite, *inter alia*, "processing a stream of fixed-length packets received by said apparatus as digitally encoded signals". However, the apparatus of Jun that includes the transmitter of FIG. 5 of Jun does not receive digitally encoded signals, but instead encodes signals itself.

Hence, while the Null-Packet Detector recited in Claims 1-3 relates to a receiver, the Null-Packet Detector cited in Jun relates to a transmitter. Clearly, the location of the Null-Packet Detector is critical with respect to whether it is included in a receiver or a transmitter, as is further explained herein below.

That is, given that Figure 5 of Jun is directed to a transmitter, of course the fact of whether a packet is a null packet and the location of the sync-byte of a detected null-packet is easily and readily known by the transmitter of FIG. 5 of Jun since it is the transmitter side itself that is determining at the onset whether a packet is to be a null packet and where a sync-byte of a null packet is to be located. However, clearly, such determinations are not so readily made at the receiver side, and the solving of this problem at the receiver side is what the subject matters of Claims 1-3 are directed to.

Moreover, given that it is the transmitter side itself that makes the determinations of whether a packet is a null packet and the location of the sync-byte of a detected null-packet, it cannot be reasonably asserted at all that any determinations relating to the same on the transmitter side correspond to such determinations of the receiver side. That is, the transmitter side readily knows this information having determined it in the first place, while it is

up to the receiver side to "**figure out**" what the transmitter side has done as far as setting a particular packet to a null packet and setting a location of a sync byte in the header portion of that null packet. For example, column 6, lines 19-21 provide an equation for assigning positions of training sync signals within null packets, hence showing that such information is initially determined by, and thus clearly known to, the encoder and the elements comprised therein (such as, for example, the null packet detector).

As set forth in MPEP §2143:

> Obviousness can * be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (discussing rationale underlying the motivation-suggestion-teaching *>test< as a guard against using hindsight in an obviousness analysis). **

Thus, by simply saying that the Null-Packet Detector of Jun is capable of "processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" as allegedly disclosed by Tanaka is not a proper rationale for combining the references under 35 U.S.C. 103(a), **since there is nothing gained by the proposed combination as the transmitter of Jun (which includes the Null-Packet Detector) must determine and hence already knows the information that is to be determined at a receiver. That is, given that nothing is gained from the proposed combination, as the transmitter (and, hence, the Null-Packet Detector therein) of Jun would already know the location of the sync-byte, there is no motivation to combine the teachings of Jun and Tanaka.**

Hence, neither Jun nor Tanaka, either taken singly or in combination, do not teach or suggest the above recited limitations of Claims 1-3.

Moreover, given that Jun is directed to a transmitter, while the subject matters of Claims 1-3 are essentially directed to receivers, it is respectfully asserted that any combination (such as a combination involving Tanaka) involving modifying the transmitter of Jun to arrive at the presently claimed subject matters of Claims 1-3 would render Jun unsatisfactory for its intended purpose (i.e., transmitting). That is, a receiver may perform "complimentary" functions with respect to the functions performed by a transmitter, but such functions are not equal. For example, a transmitter modulates data while a receiver demodulates data. Hence, while the functions performed with respect to a receiver and a transmitter may be considered related in that they are complimentary, the Examiner must remember that such functions are also opposing, such as the modulating and demodulating example provided above. These and other differences show that the combination of the transmitter disclosed in Jun with a receiver function allegedly disclosed in Tanaka is improper, and would change the principle of operation of Jun, the primary reference, as well as Tanaka.

However, as set forth in MPEP §2143.01:

> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Hence, given the preceding, no suggestion or motivation exists to combine Jun with Tanaka. Moreover, given the preceding, it is respectfully asserted that the cited combination is improper under §2143.01.

Accordingly, Claims 1-3 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, withdrawal of the rejection and allowance of Claims 1-3 is earnestly requested.

C. Whether Claims 11-12 are Unpatentable Under 35 U.S.C. §103(a) With Respect To U.S. Patent No. 6,810,084 to Jun et al. in view of U.S Patent No. 7,280,475 to Tanaka et al. and U.S. Patent No. 6,788,654 to Hashimoto et al.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art" (MPEP §2143.03, citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 11-12 as being unpatentable over U.S. Patent No. 6,810,084 to Jun et al. (hereinafter "Jun") in view of U.S. Patent No. 7,280,475 to Tanaka et al. ("hereinafter "Tanaka") and U.S. Patent No. 6,788,654 to Hashimoto et al. ("hereinafter "Hashimoto"). The Examiner contends that the cited combination shows all the limitations recited in Claims 11-12.

Jun is directed to "MPEG data frame and transmit and receive system using same" (Jun, Title). In further detail, Jun discloses the following in his Abstract:

Disclosed is an MPEG data frame and a transmitting and receiving system using the MPEG data frame for enhancing receiving performance of receiver which moves or is stationary. The digital TV broadcasting data frame according to the preferred embodiment of the present invention comprises a data frame which includes at least one data field which has 313 data segments. The first data segment of the data field is a data field sync signal which includes a training data sequence used for synchronization at the receiver, and the other 312 data segments each include a 188-byte transport packet and 20-byte error correction data. Therefore, when null packets are input to the 8 VSB transmitter, 2-level training sync signals are used as training data for an equalizer at the receiver so as to increase receiving performance of a receiver that moves or is stationary.

Tanaka is directed to a "data transfer device" (Tanaka, Title). In further detail, Tanaka discloses the following in his Abstract:

A data transfer apparatus receives from an upper station a data stream that includes a plurality of types of repeat data, each type of repeat data being repeatedly transmitted by the upper station, and transfers the repeat data to a lower station, the data transfer apparatus including a storage unit having a storage area; an extraction unit for extracting the types of repeat data from the received data stream; a writing unit for writing the extracted repeat data to the storage area; a data structure ratio determination unit for determining a ratio between the types of repeat data to be output in a data stream per fixed length of time; and a data output unit for reading the repeat data stored in the storage unit, and outputting the read repeat data at the determined ratio.

Hashimoto is directed to a "digital data receiver" (Hashimoto, Title). In further detail, Hashimoto discloses the following in his Abstract:

> After receiving a time division multiplex signal including a plurality of digital data signals transmitted in accordance with different transmission schemes, the received time division multiplex signal is demodulated by a demodulation circuit, and it is judged by a detection circuit whether each of the demodulated digital data signals is received correctly or not. When it is detected that a digital data signal transmitted by anyone of the plurality of different transmission schemes is not received correctly, the relevant digital data signal is replaced by a suitable signal such as a null packet signal which does not affect a correct reception of the remaining digital data signals transmitted by the remaining transmission schemes to form a corrected time division multiplexed signal even if a digital data signal is not received correctly.

It will be shown herein below that the limitations of Claims 11-12 reproduced herein (as argued with respect to independent Claim 1 from which they respectively depend) are not shown in the cited combination, and that Claims 11-12 should be allowed.

C1. Claims 11-12

Initially, it is respectfully pointed out to the Examiner that Claims 11-12 directly or indirectly depend from independent Claim 1. Thus, Claims 11-12 include all the limitations of Claim 1.

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claims 11-12 (with the following applicable to Claims 11-12 by virtue of their respective dependencies from Claim 1):

> a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals and having multiple packet types, each packet including a header portion and a data portion, the header portion including a sync byte,
>
> wherein said Null-Packet Detector processes the stream by detecting whether a received packet is a null-packet and for identifying the location of the sync-byte of a detected null-packet

The following portions of Jun were cited against the above recited limitations: Figure 5; col. 3, lines 58-61; col. 5, lines 11 and 40-43; and lines 10-12 of the Abstract of Jun. Additionally, **the Examiner admitted that "Jun et al. fail to specifically teach processing a stream of packets received by said apparatus"**, and cited the following portions of Tanaka as disclosing the same: "507 and 508 in Fig. 17, and col. 19, lines 41-48 for 507 and 508 descriptions".

However, with respect to the Examiner's admission, the actual limitation, taken in its proper context, recites the following: "a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" (emphasis added). Hence, it is clear that (1) the present limitations require "a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded

signals"; and (2) each of Claims 11-12 may be inherently considered to correspond to a receiver, in order to receive the stream of fixed-lengths packets for processing in the first place.

In contrast, Figure 5 of Jun is explicitly directed to a transmitter (see, e.g., Jun, col. 4, lines 39-41, and col. 5, lines 1-3). Accordingly, the first element in the transmitter of Figure 5 of Jun includes an encoder. Hence, Figure 5 of Jun does not teach or suggest processing a stream of fixed-length packets received as digitally encoded signals as recited in each of Claims 11-12, let alone "a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" as recited therein, since the transmitter of Figure 5 of Jun is itself performing the encoding prior to transmission and hence, is not receiving a stream of fixed-length packets as digitally encoded signals as recited in these claims. Element 115 of FIG. 5 of Jun pointed to by the Examiner as "a receiver of the encoded signals" on page 3 of the Office Action is simply a buffer and not a receiver. Moreover, Claims 11-12 are directed to and explicitly recite "an apparatus" (Claims 11-12, preambles), and Claims 11-12 recite, *inter alia*, "processing a stream of fixed-length packets received by said apparatus as digitally encoded signals". However, the apparatus of Jun that includes the transmitter of FIG. 5 of Jun does not receive digitally encoded signals, but instead encodes signals itself.

Hence, while the Null-Packet Detector recited in Claims 11-12 relates to a receiver, the Null-Packet Detector cited in Jun relates to a transmitter. Clearly, the location of the Null-Packet Detector is critical with respect to whether it is included in a receiver or a transmitter, as is further explained herein below.

That is, given that Figure 5 of Jun is directed to a transmitter, of course the fact of whether a packet is a null packet and the location of the sync-byte of a detected null-packet

is easily and readily known by the transmitter of FIG. 5 of Jun since it is the transmitter side itself that is determining at the onset whether a packet is to be a null packet and where a sync-byte of a null packet is to be located. However, clearly, such determinations are not so readily made at the receiver side, and the solving of this problem at the receiver side is what the subject matters of Claims 11-12 are directed to.

Moreover, given that it is the transmitter side itself that makes the determinations of whether a packet is a null packet and the location of the sync-byte of a detected null-packet, it cannot be reasonably asserted at all that any determinations relating to the same on the transmitter side correspond to such determinations of the receiver side. That is, the transmitter side readily knows this information having determined it in the first place, while it is up to the receiver side to "**figure out**" what the transmitter side has done as far as setting a particular packet to a null packet and setting a location of a sync byte in the header portion of that null packet. For example, column 6, lines 19-21 provide an equation for assigning positions of training sync signals within null packets, hence showing that such information is initially determined by, and thus clearly known to, the encoder and the elements comprised therein (such as, for example, the null packet detector).

As set forth in MPEP §2143:

> Obviousness can * be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (discussing rationale underlying the

motivation-suggestion-teaching *>test< as a guard against using hindsight in an obviousness analysis). **

Thus, by simply saying that the Null-Packet Detector of Jun is capable of "processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" as allegedly disclosed by Tanaka is not a proper rationale for combining the references under 35 U.S.C. 103(a), **since there is nothing gained by the proposed combination as the transmitter of Jun (which includes the Null-Packet Detector) must determine and hence already knows the information that is to be determined at a receiver. That is, given that nothing is gained from the proposed combination, as the transmitter (and, hence, the Null-Packet Detector therein) of Jun would already know the location of the sync-byte, there is no motivation to combine the teachings of Jun and Tanaka.**

Hence, neither Jun nor Tanaka, either taken singly or in combination, do not teach or suggest the above recited limitations of Claims 11-12.

Moreover, given that Jun is directed to a transmitter, while the subject matters of Claims 11-12 are essentially directed to receivers, it is respectfully asserted that any combination (such as a combination involving Tanaka) involving modifying the transmitter of Jun to arrive at the presently claimed subject matters of Claims 11-12 would render Jun unsatisfactory for its intended purpose (i.e., transmitting). That is, a receiver may perform "complimentary" functions with respect to the functions performed by a transmitter, but such functions are not equal. For example, a transmitter modulates data while a receiver demodulates data. Hence, while the functions performed with respect to a receiver and a transmitter may be considered related in that they are complimentary, the Examiner must remember that such functions are also opposing,

such as the modulating and demodulating example provided above. These and other differences show that the combination of the transmitter disclosed in Jun with a receiver function allegedly disclosed in Tanaka is improper, and would change the principle of operation of Jun, the primary reference, as well as Tanaka.

However, as set forth in MPEP §2143.01:

> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Hence, given the preceding, no suggestion or motivation exists to combine Jun with Tanaka. Moreover, given the preceding, it is respectfully asserted that the cited combination is improper under §2143.01.

Moreover, in all regards relating to the above, it is respectfully asserted that Hashimoto does not cure the deficiencies of Jun and/or Tanaka, and is silent with respect to the above recited limitations.

Accordingly, Claims 11-12 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, withdrawal of the rejection and allowance of Claims 11-12 is earnestly requested.

D. Whether Claims 13-19 are Unpatentable Under 35 U.S.C. §103(a) With Respect To U.S. Patent No. 6,810,084 to Jun et al. in view of U.S Patent No. 7,280,475 to Tanaka

et al. and U.S. Patent Publication No. 2003/0115345 to Chien et al.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art" (MPEP §2143.03, citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 13-19 as being unpatentable over U.S. Patent No. 6,810,084 to Jun et al. (hereinafter "Jun") in view of U.S. Patent No. 7,280,475 to Tanaka et al. ("hereinafter "Tanaka") and U.S. Patent Publication No. 2003/0115345 to Chien et al. (hereinafter "Chien"). The Examiner contends that the cited combination shows all the limitations recited in Claims 13-19.

Jun is directed to "MPEG data frame and transmit and receive system using same" (Jun, Title). In further detail, Jun discloses the following in his Abstract:

> Disclosed is an MPEG data frame and a transmitting and receiving system using the MPEG data frame for enhancing receiving performance of receiver which moves or is stationary. The digital TV broadcasting data frame according to the preferred embodiment of the present invention comprises a data frame which includes at least one data field which has 313 data segments. The first data segment of the data field is a data field sync signal which includes a training data sequence used for synchronization at the receiver, and the other 312 data segments each include a 188-byte transport packet and 20-byte error correction data. Therefore, when null packets are input to the 8 VSB transmitter, 2-level training sync signals are used as training data for an equalizer at the receiver so as to increase receiving performance of a receiver that moves or is stationary.

Tanaka is directed to a "data transfer device" (Tanaka, Title). In further detail, Tanaka discloses the following in his Abstract:

> A data transfer apparatus receives from an upper station a data stream that includes a plurality of types of repeat data, each type of repeat data being repeatedly transmitted by the upper station, and transfers the repeat data to a lower station, the data transfer apparatus including a storage unit having a storage area; an extraction unit for extracting the types of repeat data from the received data stream; a writing unit for writing the extracted repeat data to the storage area; a data structure ratio determination unit for determining a ratio between the types of repeat data to be output in a data stream per fixed length of time; and a data output unit for reading the repeat data stored in the storage unit, and outputting the read repeat data at the determined ratio.

Chien is directed to "method and apparatus for masking destination addresses to reduce traffic over a communication link" (Chien, Title). In further detail, Chien discloses the following in his Abstract:

> One method described includes the steps of monitoring, at a wireless transceiver unit, communications involving address assignment between a dynamic host configuration protocol (DHCP) server and one or more computer devices; storing, at the wireless transceiver unit, at least one computer device identifier corresponding to at least one computer device that was assigned an address by the DHCP server; receiving, at the wireless transceiver unit, traffic from a first computer device of the one or more computer devices; identifying, at

the wireless transceiver using the at least one computer device identifier, that the first computer device is one that was assigned an address by the DHCP server; transmitting, from the wireless transceiver unit over a wireless communication link, traffic from the first computer device based on identifying that it was assigned an address by the DHCP server; receiving, at the wireless transceiver unit, traffic from a second computer device of the one or more computer devices; failing to identify, at the wireless transceiver unit using the at least one computer device identifier, that the second computer device is one that was assigned an address by the DHCP server; and inhibiting transmission, from the wireless transceiver unit over the wireless communication link, traffic from the second computer device based on failing to identify that it was assigned an address by the DHCP server.

It will be shown herein below that the limitations of Claims 13-19 reproduced herein (as argued with respect to independent Claim 13, where Claims 14-19 depend from Claim 13) are not shown in the cited combination, and that Claims 13-19 should be allowed.

D1. Claims 13-19

Initially, it is respectfully pointed out to the Examiner that Claims 14-19 depend from independent Claim 13. Thus, Claims 14-19 include all the limitations of Claim 13.

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claims 13-19 (with the following applicable to Claims 14-19 by virtue of their respective dependencies from Claim 13):

a Syndrome Detector for processing a stream of fixed-length packets

received by said apparatus as digitally encoded signals and having multiple packet types, each packet including a header portion and a data portion, the header portion including a checksum-encoded sync byte, the stream processed by detecting the checksum-encoded sync-byte and ~~for~~ generating a Sync_flag signal to indicate the location of the checksum-encoded sync-byte;

a Null-Packet Detector adapted to detect whether a received packet is a null-packet, and adapted to identify the location of the sync-byte of a detected null-packet; and

an MPEG Sync-Byte Re-insertion circuit for inserting a predetermined value into the sync-byte location indicated by an MPEG synchronization signal.

The following portions of Jun were cited against the above recited limitations: Figure 5; col. 3, lines 58-61; col. 5, lines 11 and 40-43; and lines 10-12 of the Abstract of Jun. Additionally, **the Examiner admitted that "Jun et al. fail to specifically teach processing a stream of packets received by said apparatus"**, and cited the following portions of Tanaka as disclosing the same: "507 and 508 in Fig. 17, and col. 19, lines 41-48 for 507 and 508 descriptions".

However, with respect to the Examiner's admission, the actual limitation, taken in its proper context, recites the following: "a Syndrome Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" (emphasis added). Hence, it is clear that (1) the present limitations require "a Syndrome Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals"; and (2) each of Claims 13-19 may be inherently considered to correspond to a receiver, in order to receive the stream of fixed-lengths packets for processing in the first place.

It is to be noted that NO element from any of the cited references was particularly cited as corresponding to the Syndrome Detector. Rather only some of the functions performed by the Syndrome Detector were related to some of the references.

In contrast, Figure 5 of Jun is explicitly directed to a transmitter (see, e.g., Jun, col. 4, lines 39-41, and col. 5, lines 1-3). Accordingly, the first element in the transmitter of Figure 5 of Jun includes an encoder. Hence, Figure 5 of Jun does not teach or suggest processing a stream of fixed-length packets received as digitally encoded signals as recited in each of Claims 13-19, let alone "a Syndrome Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" or "a Null-Packet Detector adapted to detect whether a received packet is a null-packet, and adapted to identify the location of the sync-byte of a detected null-packet" as recited therein, since the transmitter of Figure 5 of Jun is itself performing the encoding prior to transmission and hence, is not receiving a stream of fixed-length packets as digitally encoded signals as recited in these claims. Element 115 of FIG. 5 of Jun pointed to by the Examiner as "a receiver of the encoded signals" on page 3 of the Office Action is simply a buffer and not a receiver. Moreover, Claims 13-19 are directed to and explicitly recite "an apparatus" (Claims 13-19, preambles), and Claims 13-19 recite, *inter alia*, "processing a stream of fixed-length packets received by said apparatus as digitally encoded signals". However, the apparatus of Jun that includes the transmitter of FIG. 5 of Jun does not receive digitally encoded signals, but instead encodes signals itself.

Hence, while the Syndrome Detector and Null-Packet Detector recited in Claims 13-19 relates to a receiver, the Null-Packet Detector cited in Jun relates to a transmitter. Clearly, the

location of the Syndrome Detector/Null-Packet Detector is critical with respect to whether it is included in a receiver or a transmitter, as is further explained herein below.

That is, given that Figure 5 of Jun is directed to a transmitter, of course the fact of whether a packet is a null packet and the location of the sync-byte of a detected null-packet is easily and readily known by the transmitter of FIG. 5 of Jun since it is the transmitter side itself that is determining at the onset whether a packet is to be a null packet and where a sync-byte of a null packet is to be located. However, clearly, such determinations are not so readily made at the receiver side, and the solving of this problem at the receiver side is what the subject matters of Claims 13-19 are directed to.

Moreover, given that it is the transmitter side itself that makes the determinations of whether a packet is a null packet and the location of the sync-byte of a detected null-packet, it cannot be reasonably asserted at all that any determinations relating to the same on the transmitter side correspond to such determinations of the receiver side. That is, the transmitter side readily knows this information having determined it in the first place, while it is up to the receiver side to "**figure out**" what the transmitter side has done as far as setting a particular packet to a null packet and setting a location of a sync byte in the header portion of that null packet. For example, column 6, lines 19-21 provide an equation for assigning positions of training sync signals within null packets, hence showing that such information is initially determined by, and thus clearly known to, the encoder and the elements comprised therein (such as, for example, the null packet detector).

As set forth in MPEP §2143:

> Obviousness can * be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (discussing rationale underlying the motivation-suggestion-teaching *>test< as a guard against using hindsight in an obviousness analysis). **

Thus, by simply saying that the Null-Packet Detector of Jun is capable of "processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" as allegedly disclosed by Tanaka is not a proper rationale for combining the references under 35 U.S.C. 103(a), **since there is nothing gained by the proposed combination as the transmitter of Jun (which includes the Null-Packet Detector) must determine and hence already knows the information that is to be determined at a receiver. That is, given that nothing is gained from the proposed combination, as the transmitter (and, hence, the Null-Packet Detector therein) of Jun would already know the location of the sync-byte, there is no motivation to combine the teachings of Jun and Tanaka.**

Hence, neither Jun nor Tanaka, either taken singly or in combination, do not teach or suggest the above recited limitations of Claims 13-19.

Moreover, given that Jun is directed to a transmitter, while the subject matters of Claims 13-19 are essentially directed to receivers, it is respectfully asserted that any combination (such as a combination involving Tanaka) involving modifying the transmitter of Jun to arrive at the presently claimed subject matters of Claims 13-19 would render Jun unsatisfactory for its intended purpose (i.e., transmitting). That is, a receiver may perform "complimentary" functions with respect to the functions performed by a transmitter, but such functions are not equal. For

example, a transmitter modulates data while a receiver demodulates data. Hence, while the functions performed with respect to a receiver and a transmitter may be considered related in that they are complimentary, the Examiner must remember that such functions are also opposing, such as the modulating and demodulating example provided above. These and other differences show that the combination of the transmitter disclosed in Jun with a receiver function allegedly disclosed in Tanaka is improper, and would change the principle of operation of Jun, the primary reference, as well as Tanaka.

However, as set forth in MPEP §2143.01:

> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Hence, given the preceding, no suggestion or motivation exists to combine Jun with Tanaka. Moreover, given the preceding, it is respectfully asserted that the cited combination is improper under §2143.01.

Moreover, in all regards relating to the above, it is respectfully asserted that Chien does not cure the deficiencies of Jun and/or Tanaka, and is silent with respect to the above recited limitations.

Accordingly, Claims 13-19 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, withdrawal of the rejection and allowance of Claims 13-19 is earnestly requested.

E. Whether Claims 20-37 are Unpatentable Under 35 U.S.C. §103(a) With Respect To U.S. Patent No. 6,810,084 to Jun et al. in view of U.S Patent No. 7,280,475 to Tanaka et al. and U.S. Patent Publication No. 2003/0115345 to Chien et al. and U.S. Patent No. 6,788,654 to Hashimoto et al.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art" (MPEP §2143.03, citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 20-37 as being unpatentable over U.S. Patent No. 6,810,084 to Jun et al. (hereinafter "Jun") in view of U.S. Patent No. 7,280,475 to Tanaka et al. ("hereinafter "Tanaka") and U.S. Patent Publication No. 2003/0115345 to Chien et al. (hereinafter "Chien") and U.S. Patent No. 6,788,654 to Hashimoto et al. (hereinafter "Hashimoto"). The Examiner contends that the cited combination shows all the limitations recited in Claims 20-37.

Jun is directed to "MPEG data frame and transmit and receive system using same" (Jun, Title). In further detail, Jun discloses the following in his Abstract:

> Disclosed is an MPEG data frame and a transmitting and receiving system using the MPEG data frame for enhancing receiving performance of receiver which moves or is stationary. The digital TV broadcasting data frame according to the preferred embodiment of the present invention comprises a data frame which includes at least one data field which has 313 data segments. The first data

segment of the data field is a data field sync signal which includes a training data sequence used for synchronization at the receiver, and the other 312 data segments each include a 188-byte transport packet and 20-byte error correction data. Therefore, when null packets are input to the 8 VSB transmitter, 2-level training sync signals are used as training data for an equalizer at the receiver so as to increase receiving performance of a receiver that moves or is stationary.

Tanaka is directed to a "data transfer device" (Tanaka, Title). In further detail, Tanaka discloses the following in his Abstract:

A data transfer apparatus receives from an upper station a data stream that includes a plurality of types of repeat data, each type of repeat data being repeatedly transmitted by the upper station, and transfers the repeat data to a lower station, the data transfer apparatus including a storage unit having a storage area; an extraction unit for extracting the types of repeat data from the received data stream; a writing unit for writing the extracted repeat data to the storage area; a data structure ratio determination unit for determining a ratio between the types of repeat data to be output in a data stream per fixed length of time; and a data output unit for reading the repeat data stored in the storage unit, and outputting the read repeat data at the determined ratio.

Chien is directed to "method and apparatus for masking destination addresses to reduce traffic over a communication link" (Chien, Title). In further detail, Chien discloses the following in his Abstract:

One method described includes the steps of monitoring, at a wireless transceiver unit, communications involving address assignment between a dynamic host configuration protocol (DHCP) server and one or more computer devices; storing, at the wireless transceiver unit, at least one computer device identifier corresponding to at least one computer device that was assigned an address by the DHCP server; receiving, at the wireless transceiver unit, traffic from a first computer device of the one or more computer devices; identifying, at the wireless transceiver using the at least one computer device identifier, that the first computer device is one that was assigned an address by the DHCP server; transmitting, from the wireless transceiver unit over a wireless communication link, traffic from the first computer device based on identifying that it was assigned an address by the DHCP server; receiving, at the wireless transceiver unit, traffic from a second computer device of the one or more computer devices; failing to identify, at the wireless transceiver unit using the at least one computer device identifier, that the second computer device is one that was assigned an address by the DHCP server; and inhibiting transmission, from the wireless transceiver unit over the wireless communication link, traffic from the second computer device based on failing to identify that it was assigned an address by the DHCP server.

Hashimoto is directed to a "digital data receiver" (Hashimoto, Title). In further detail, Hashimoto discloses the following in his Abstract:

After receiving a time division multiplex signal including a plurality of digital data signals transmitted in accordance with different transmission schemes, the received time division multiplex signal is demodulated by a demodulation circuit, and it is judged by a detection circuit whether each of the demodulated digital data signals is received correctly or not. When it is detected that a digital

data signal transmitted by anyone of the plurality of different transmission schemes is not received correctly, the relevant digital data signal is replaced by a suitable signal such as a null packet signal which does not affect a correct reception of the remaining digital data signals transmitted by the remaining transmission schemes to form a corrected time division multiplexed signal even if a digital data signal is not received correctly.

It will be shown herein below that the limitations of Claims 20-37 reproduced herein (as argued with respect to independent Claims 20, 34, and 35, where Claims 21-33 and 36-37 depend from Claim 20) are not shown in the cited combination, and that Claims 20-37 should be allowed.

E1. Claims 20-37

Initially, it is respectfully pointed out to the Examiner that Claims 21-33 and 36-37 depend from independent Claim 20. Thus, Claims 21-33 and 36-37 include all the limitations of Claim 20.

It is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations of Claims 20-33 and 36-37 (with the following applicable to Claims 21-33 and 36-37 by virtue of their respective dependencies from Claim 20):

processing a stream of fixed length packets received by said method as digitally encoded signals, each packet including a checksum-encoded sync-byte, the stream including a plurality of packets that each contain a first fixed bit pattern in the header portion of each packet,

wherein said processing step comprises:

performing a first detection step of decoding the checksum in the stream to detect a checksum-encoded sync byte position candidate in the current one of the fixed length packets;

performing a second detection step to detect the first fixed bit pattern in the header portion of the current one of the fixed length packets;

if the first fixed bit pattern is detected in the stream of fixed length packets, then identifying the sync-byte position of the sync-byte of each of the fixed length packets based upon the detection of the first fixed bit pattern; and

inserting a predetermined sync-byte value into the identified sync-byte position.

Also, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitations recited in Claim 34:

processing a stream of fixed length packets received by said method as digitally encoded signals, each packet including a checksum-encoded sync-byte, the stream including a plurality of packets that each contain a first data pattern in a PID portion,

wherein said processing step comprises:

decoding the checksum in a preceding one of the fixed length packets to detect a checksum-encoded sync byte candidate in a current one of the fixed length packets; and

if a checksum-encoded sync byte candidate is detected in the decoding step, then searching for the first data pattern in the PID portion of the current one of the fixed length packets.

Additionally, it is respectfully asserted that none of the cited references, either taken singly or in combination, teach or suggest the following limitation recited in Claim 35:

> means for processing a stream of fixed length packets received by said apparatus as digitally encoded signals, each packet including a checksum-encoded sync-byte, the stream including a plurality of packets that each contain a first data pattern in a PID portion,
>
> wherein said means for processing comprises:
>
> means for decoding the checksum in a preceding one of the fixed length packets to detect a checksum-encoded sync byte candidate in a current one of the fixed length packets; and
>
> means for searching for the first data pattern in the PID portion of the current one of the fixed length packets when a checksum-encoded sync byte candidate is detected in the decoding step.

The following portions of Jun were cited against the above recited limitations: Figure 5, col. 3, lines 58-61, col. 5, lines 11 and 40-43, and lines 10-12 of the Abstract of Jun; and paragraph [0076] of Chien. Additionally, **the Examiner admitted that "Jun et al. fail to specifically teach processing a stream of packets received by said apparatus"**, and cited the following portions of Tanaka as disclosing the same: "507 and 508 in Fig. 17, and col. 19, lines 41-48 for 507 and 508 descriptions".

It is clear that (1) the present limitations require "processing a stream of fixed length packets received by said method/apparatus"; and (2) each of Claims 20-37 may be inherently considered to correspond to a receiver, in order to receive the stream of fixed-lengths packets for processing in the first place.

In contrast, Figure 5 of Jun is explicitly directed to a transmitter (see, e.g., Jun, col. 4, lines 39-41, and col. 5, lines 1-3). Accordingly, the first element in the transmitter of Figure 5 of Jun includes an encoder. Hence, Figure 5 of Jun does not teach or suggest processing a stream of fixed length packets received by said method/apparatus as recited in each of Claims 20-37, since the transmitter of Figure 5 of Jun is itself performing the encoding prior to transmission and hence, is not receiving a stream of fixed-length packets as digitally encoded signals as recited in these claims. Element 115 of FIG. 5 of Jun pointed to by the Examiner as "a receiver of the encoded signals" on page 3 of the Office Action is simply a buffer and not a receiver. Moreover, Claims 20-37 are directed to and explicitly recite "a method" or "an apparatus" (Claims 20-37, preambles), and Claims 20-37 recite, *inter alia*, "processing a stream of fixed-length packets received by said method/apparatus as digitally encoded signals". However, the apparatus of Jun that includes the transmitter of FIG. 5 of Jun does not receive digitally encoded signals, but instead encodes signals itself.

Hence, while the Null-Packet Detector recited in Claims 20-37 relates to a receiver, the Null-Packet Detector cited in Jun relates to a transmitter. Clearly, whether such above described processing is performed in a receiver or a transmitter is critical, as is further explained herein below.

That is, given that Figure 5 of Jun is directed to a transmitter, of course the fact of whether a packet is a null packet and the location of the sync-byte of a detected null-packet is easily and readily known by the transmitter of FIG. 5 of Jun since it is the transmitter side itself that is determining at the onset whether a packet is to be a null packet and where a sync-byte of a null packet is to be located. However, clearly, such determinations are not so

readily made at the receiver side, and the solving of this problem at the receiver side is what the subject matters of Claims 20-37 are directed to.

Moreover, given that it is the transmitter side itself that makes the determinations of whether a packet is a null packet and the location of the sync-byte of a detected null-packet, it cannot be reasonably asserted at all that any determinations relating to the same on the transmitter side correspond to such determinations of the receiver side. That is, the transmitter side readily knows this information having determined it in the first place, while it is up to the receiver side to "**figure out**" what the transmitter side has done as far as setting a particular packet to a null packet and setting a location of a sync byte in the header portion of that null packet. For example, column 6, lines 19-21 provide an equation for assigning positions of training sync signals within null packets, hence showing that such information is initially determined by, and thus clearly known to, the encoder and the elements comprised therein (such as, for example, the null packet detector).

As set forth in MPEP §2143:

> Obviousness can * be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (discussing rationale underlying the motivation-suggestion-teaching *>test< as a guard against using hindsight in an obviousness analysis). **

Thus, by simply saying that the Null-Packet Detector of Jun is capable of "processing a stream of fixed-length packets received by said apparatus as digitally encoded signals" as

allegedly disclosed by Tanaka is not a proper rationale for combining the references under 35 U.S.C. 103(a), **since there is nothing gained by the proposed combination as the transmitter of Jun (which includes the Null-Packet Detector) must determine and hence already knows the information that is to be determined at a receiver. That is, given that nothing is gained from the proposed combination, as the transmitter (and, hence, the Null-Packet Detector therein) of Jun would already know the location of the sync-byte, there is no motivation to combine the teachings of Jun and Tanaka.**

Hence, neither Jun nor Tanaka, either taken singly or in combination, do not teach or suggest the above recited limitations of Claims 20-37.

Moreover, given that Jun is directed to a transmitter, while the subject matters of Claims 20-37 are essentially directed to receivers, it is respectfully asserted that any combination (such as a combination involving Tanaka) involving modifying the transmitter of Jun to arrive at the presently claimed subject matters of Claims 20-37 would render Jun unsatisfactory for its intended purpose (i.e., transmitting). That is, a receiver may perform "complimentary" functions with respect to the functions performed by a transmitter, but such functions are not equal. For example, a transmitter modulates data while a receiver demodulates data. Hence, while the functions performed with respect to a receiver and a transmitter may be considered related in that they are complimentary, the Examiner must remember that such functions are also opposing, such as the modulating and demodulating example provided above. These and other differences show that the combination of the transmitter disclosed in Jun with a receiver function allegedly disclosed in Tanaka is improper, and would change the principle of operation of Jun, the primary reference, as well as Tanaka.

However, as set forth in MPEP §2143.01:

> If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Hence, given the preceding, no suggestion or motivation exists to combine Jun with Tanaka. Moreover, given the preceding, it is respectfully asserted that the cited combination is improper under §2143.01.

Moreover, in all regards relating to the above, it is respectfully asserted that neither Chien nor Hashimoto cure the deficiencies of Jun and/or Tanaka, and are silent with respect to the above recited limitations.

Accordingly, Claims 20-37 are patentably distinct and non-obvious over the cited references for at least the reasons set forth above. Therefore, withdrawal of the rejection and allowance of Claims 20-37 is earnestly requested.

E. Conclusion

At least the above-identified limitations of the pending claims are not disclosed or suggested by the teachings of the cited references. Accordingly, it is respectfully requested that the Board reverse the rejections of Claim 1-3 and 11-37 under 35 U.S.C. §103(a).

No fees are being submitted along with the submission of this brief; since the fee was previously paid along with the submission of the original Appeal Brief on February 3, 2009. Similarly, no fees are being submitted along with the co-submitted Notice of Appeal, since that fee was also previously paid when the original Notice of Appeal was submitted on February 3, 2009.

However, in the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge **Deposit Account No. 07-0832** as required to correct the error.

Respectfully submitted,

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July 13, 2009

8. CLAIMS APPENDIX

1. (rejected) An apparatus, comprising:

a Null-Packet Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals and having multiple packet types, each packet including a header portion and a data portion, the header portion including a sync byte,

wherein said Null-Packet Detector processes the stream by detecting whether a received packet is a null-packet and for identifying the location of the sync-byte of a detected null-packet.

2. (rejected) The apparatus of claim 1, wherein the Null-Packet Detector further generates a Null_flag signal to indicate whether a received packet is a null-packet and generates a Null_sync signal to indicate the location of the sync-byte of a detected null-packet.

3. (rejected) The apparatus of claim 2, further comprising a circuit adapted to insert a predetermined sync-byte value into the sync-byte position indicated by the Null_sync signal.

4. (objected to) The apparatus of claim 2, further comprising a filter adapted to filter the Null_flag signal and adapted to generate a Null_lock signal a first value of which indicates that the stream contains a plurality of null packets.

5. (objected to) The apparatus of claim 4 wherein the filter implements hysteresis thresholding.

6. (objected to) The apparatus of claim 4 wherein the filter is implemented by a finite state machine.

7. (objected to) The apparatus of claim 4, wherein the first value of Null_lock signal output by the filter indicates that the stream contains a first threshold number of null-packets (Lock_In_thresh) within a first number of consecutive packets.

8. (objected to) The apparatus of claim 7, wherein at least one of the first threshold number and the first number of consecutive packets is programmable.

9. (objected to) The apparatus of claim 7, wherein a second value of the Null_lock signal output by the filter indicates that the stream contains a second threshold number (Lock_Out_thresh) of packets that are not null packets, within a second number of consecutive packets.

10. (objected to) The apparatus of claim 9, wherein at least one of the first threshold number, and the second threshold number is programmable.

11. (rejected) The apparatus of claim 2, wherein the Null-Packet Detector determines whether a received packet is a null-packet by comparing contents of the header portion of the received packet with a first predetermined value.

12. (rejected) The apparatus of claim 11, wherein the Null-Packet Detector determines whether a received packet is a null-packet by further comparing contents of the data portion of the received packet with a second predetermined value.

13. (rejected) An apparatus, comprising:

a Syndrome Detector for processing a stream of fixed-length packets received by said apparatus as digitally encoded signals and having multiple packet types, each packet including a header portion and a data portion, the header portion including a checksum-encoded sync byte, the stream processed by detecting the checksum-encoded sync-byte and generating a Sync_flag signal to indicate the location of the checksum-encoded sync-byte;

a Null-Packet Detector adapted to detect whether a received packet is a null-packet, and adapted to identify the location of the sync-byte of a detected null-packet; and

an MPEG Sync-Byte Re-insertion circuit for inserting a predetermined value into the

sync-byte location indicated by an MPEG synchronization signal.

14. (rejected) The apparatus of claim 13, wherein the Null-Packet Detector is further adapted to output a Null_sync signal to indicate the location of the sync-byte of a detected null-packet.

15. (rejected) The apparatus of claim 14, further comprising:

a multiplexor, wherein the Sync_flag output of the Syndrome Detector and the Null_sync output of the Null-Packet Detector are multiplexed and are alternatively output by the multiplexor, to be used by the MPEG Sync-Byte Re-insertion circuit, according to whether null packets have been detected.

16. (rejected) The apparatus of claim 15, further comprising a decisional logic circuit operatively connected to the multiplexor and adapted to control the multiplexor so that when the Null-Packet Detector detects null packets, the Null_sync output of the Null Packet Detector is output by the multiplexor to be used as the MPEG synchronization signal by the MPEG Sync-Byte Re-insertion circuit.

17. (rejected) The apparatus of claim 14 adapted so that when null packets are detected, the Null_sync output of the Null Packet detector is used as the MPEG synchronization signal used by the MPEG Sync Re-insertion circuit.

18. (rejected) The apparatus of claim 17, wherein when null packets are not detected, the Null_sync output of the Null Packet detector is not used as the MPEG synchronization signal used by the MPEG Sync Re-insertion circuit.

19. (rejected) The apparatus of claim 18, wherein when null packets are not detected, the Sync_flag output by the Syndrome Detector is used as the MPEG synchronization signal used by the MPEG Sync Re-insertion circuit.

20. (rejected) A method, comprising:

processing a stream of fixed length packets received by said method as digitally encoded signals, each packet including a checksum-encoded sync-byte, the stream including a plurality of packets that each contain a first fixed bit pattern in the header portion of each packet,

wherein said processing step comprises:

performing a first detection step of decoding the checksum in the stream to detect a checksum-encoded sync byte position candidate in the current one of the fixed length packets;

performing a second detection step to detect the first fixed bit pattern in the header portion of the current one of the fixed length packets;

if the first fixed bit pattern is detected in the stream of fixed length packets, then identifying the sync-byte position of the sync-byte of each of the fixed length packets based upon the detection of the first fixed bit pattern; and

inserting a predetermined sync-byte value into the identified sync-byte position.

21. (rejected) The method of claim 20, wherein the second detection step is performed only if a checksum-encoded sync byte position candidate is detected in the first detection step.

22. (rejected) The method of claim 20, wherein while the first fixed bit pattern is not detected in the stream of fixed length packets, then identifying the sync-byte position of the sync-byte of each of the fixed length packets in the stream based upon the result of the first detection step;

and inserting the predetermined sync-byte value into the sync-byte position candidate based upon the result of the first detection step.

23. (rejected) The method of claim 20, wherein if a checksum-encoded sync byte candidate is detected in the first detection step, but the first fixed bit pattern is not detected by

the second detection step, then inserting a predetermined sync-byte value into the sync-byte position candidate based upon the result of the first detection step.

24. (rejected) The method of claim 20, wherein the second detection step is performed even if a checksum-encoded sync byte candidate is not detected in the first detection step.

25. (rejected) The method of claim 20, wherein the first fixed bit pattern is a predetermined bit pattern in the header portion of each packet within the plurality of packets.

26. (rejected) The method of claim 25, wherein said header portions comprise transport headers of an MPEG-2 Transport Stream.

27. (rejected) The method of claim 20, wherein the first fixed bit pattern is a predetermined pattern that includes at least one of the following MPEG-2 transport stream link header field values: payload_unit_start_indicator = '0', PID=0x1FFF, transport scrambling control = '00', and adaptation field = '01' .

28. (rejected) The method of claim 20, wherein each of the plurality of packets is an MPEG-2 null-packet.

29. (rejected) The method of claim 20, wherein each packet in the plurality of packets that each contain a first fixed bit pattern in a header portion of each packet further contains a second fixed bit pattern within the data portion of each packet; and further comprising:

performing a third detection step to detect the second fixed bit pattern in the plurality of packets within the stream of fixed length packets, and if the second fixed bit pattern is detected in the stream of fixed length packets, then inserting the predetermined sync-byte value into the sync-byte position based upon the result of the third detection step.

30. (rejected) The method of claim 28, wherein the third detection step is performed only if a checksum-encoded sync byte position candidate is detected in the first detection step.

31. (rejected) The method of claim 28, wherein if neither of the first and second detection steps has identified a sync byte position, then no predetermined sync-byte value is inserted in the stream of fixed length packets.

32. (rejected) The method of claim 28, wherein the third detection step is performed only if the first fixed bit pattern is detected in the stream of fixed length packets in the second detection step.

33. (rejected) The method of claim 28, wherein if the second fixed bit pattern is not detected in the stream of fixed length packets, then identifying the sync-byte position of the sync-byte of each of the fixed length packets based upon the result of the first detection step.

34. (rejected) A method, comprising:

processing a stream of fixed length packets received by said method as digitally encoded signals, each packet including a checksum-encoded sync-byte, the stream including a plurality of packets that each contain a first data pattern in a PID portion,

wherein said processing step comprises:

decoding the checksum in a preceding one of the fixed length packets to detect a checksum-encoded sync byte candidate in a current one of the fixed length packets; and

if a checksum-encoded sync byte candidate is detected in the decoding step, then searching for the first data pattern in the PID portion of the current one of the fixed length packets.

35. (rejected) An apparatus, comprising:

means for processing a stream of fixed length packets received by said apparatus as digitally encoded signals, each packet including a checksum-encoded sync-byte, the stream

including a plurality of packets that each contain a first data pattern in a PID portion,

wherein said means for processing comprises:

means for decoding the checksum in a preceding one of the fixed length packets to detect a checksum-encoded sync byte candidate in a current one of the fixed length packets; and

means for searching for the first data pattern in the PID portion of the current one of the fixed length packets when a checksum-encoded sync byte candidate is detected in the decoding step.

36. (rejected) A computer program product for a set-top-box that comprises a set of instructions, which, when loaded into the set-top-box, causes the set-top-box to carry out the method, for processing a stream of fixed length packets, claimed in claim 20.

37. (rejected) A computer program product for a television set that comprises a set of instructions, which, when loaded into the television set, causes the television set to carry out the method, for processing a stream of fixed length packets, claimed in claim 20.

9. RELATED EVIDENCE APPENDIX

None.

10. RELATED PROCEEDINGS APPENDIX

None